

# UNCOMPRESSED VIDEO STREAMING IN WIRELESS CHANNEL WITHOUT INTERPOLATION USING SEARCH ALGORITHMS

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## ABSTRACT

Uncompressed video transmission recently paying attention because low end-to-end latency, good video quality and low convolution. In this method put forward a real-time uncompressed video diffusion system, where Unequal bit Allocation (UBA) approach are adopted to the end-to-end mean square error (MSE). Based on the Full search and logarithm search algorithm using the method. Video is improved largely and it provides that the different-level UBA scheme outperforms the conservative two-level of unequal bit allocation scheme in the stipulations of the average peak-signal-to-noise (PSNR) at restrained SNRs, and the proposed adaptive UBA approach can good visual quality and the wireless communication. The pixel motion estimation is used correct the motion vector prediction in the H.264/AVC video coding. The proposed method solves the more complexity of the calculation of the fractional-pixel motion estimated video coding resolution is increased.

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## INTRODUCTION

Motion estimation in the block of encoded vector called the motion estimation, motion estimation is due. Termined to the motion vector two type the motion estimation temporal and spatial estimation, spatial estimation finding the two methods, pixel based method and feature based method, pixel based method also called direct method, feature based method also called indirect method in a direct method have a four types. There are block matching algorithm, pixel recursive algorithm, optical flow and phase correlation methods. Block matching algorithm processed in the difference search methods search algorithm evaluation metrics Mean Squared Error (MSE) and power signal to noise ratio

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performance. Motion vector can be determined the current frame and reference frame. I-frame can be used to encoding the pixel value and the P-frame can be using the forward picture prediction, B-frame can be using the bidirectional picture prediction method. The most important improvement of inter-frame prediction implementation methods with regards provides the most flexible partition block, pixel motion resolution and multiple reference. Many images and videos processing important in the interpolation method small image and the interpolation process can determined large software using, there are the various method interpolation the integer pixel interpolation, quarter-pixel interpolation, half-pixel and sub-pixel interpolation, sub-pixel technique reduce the number of search point motion estimation can be defined the two methods, the methods are mechanical method, electronic method. The methods can be determined the infrared and optics this method can be using the sensor.

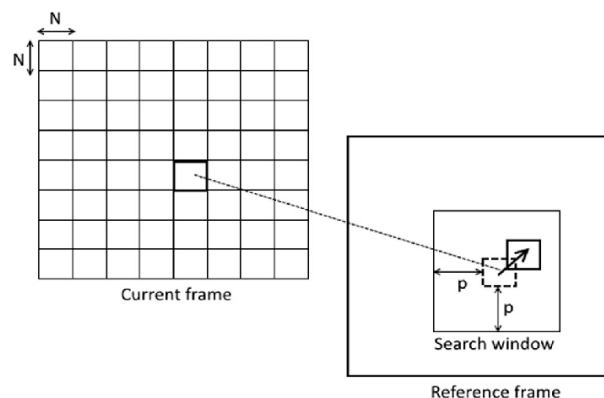
Motion estimation important in many video coding standards in MPEG-2 and HVEC to be used in real time uncompressed video application sub-pixel motion estimation can be reach the global minimum and reduce the complexity. In this paper proposed full search algorithm logarithmic algorithm. Full search algorithm can be produced the optimal estimation solution and expansive computational method the complexity can be measured the computing average number and checking points of motion vector generation, motion estimation evaluation approach the location of a global optimum method.

## SEARCH ALGORITHMS

### 2.1 Full Search Algorithm

Motion estimation without interpolation the combination of block matching and optical flow method. In this method can be implemented to the full search algorithm and logarithmic search algorithm, the full search algorithm is most expansive block matching algorithm. The algorithm can calculate the cost of the each possible location and the result which it finds the high Peak Signal to Noise Ratio (PSNR). Fast block matching algorithm can achieve the high PSNR, one disadvantage can acquired in the method full search algorithm can calculated the current frame and reference frame. Motion estimation of the full search algorithm can be calculate the sum absolute difference (SAD). In this method can be reducing the computational cost and enabling to the fast real time video coding method. The MPEG-4 in an advanced video coding method, different video frame and different pixel value.

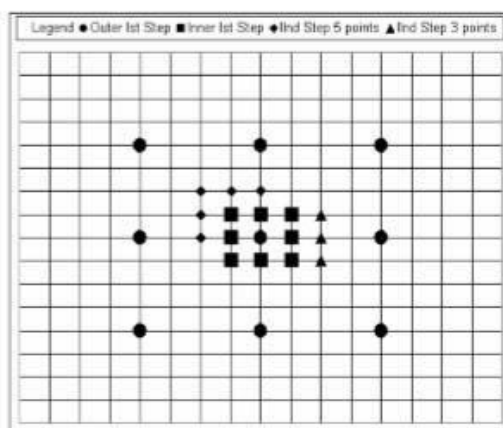
**Figure – 1:** *Full Search Motion Estimation*



## 2.2 Logarithmic Search Algorithm

The Logarithmic search algorithm is a two dimensional algorithm. In this method reduces the size of the macro block result in the high Peak Signal to Noise Ratio (PSNR) only four locations are tested by the method. In the method can be used the cross search pattern method. The starting step size is  $d/4$ . Three step size sets the center point and the step size is 4 and parameter value of 7, pixel around the location in the (0,0).

Figure – 2: Logarithmic Motion Estimation

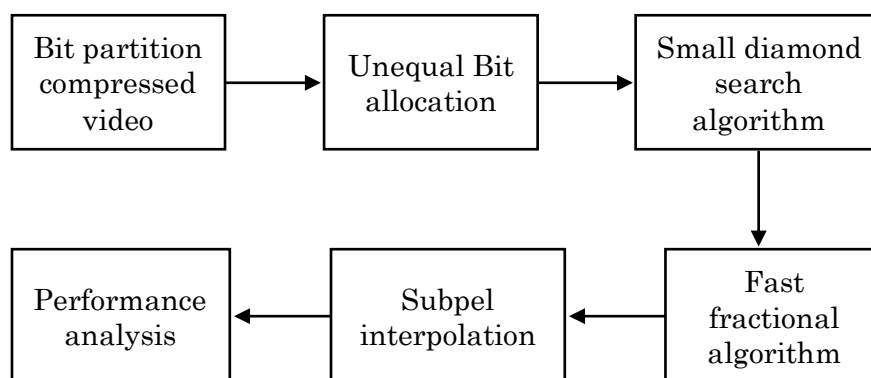


## SYSTEM ANALYSIS

### 3.1 Existing System

Wireless channels contain a variety of videos. The pixel motion estimation used the accurate vector motion, calculating. In the method based on the two algorithms, they are diamond search algorithm and fast fractional algorithm in pixel method. The proposed algorithm performance can be reduced the computational for the pixel fraction method. In this method calculating the 60%.v.

Figure – 3: Video Compression for Different Search Algorithm



#### 3.1.1 Drawbacks

- Signals, audio, image and video, can be transmitted and acquired the communication errors.
- Simultaneously from side to side different broadcast antennas using unequal transmit power.

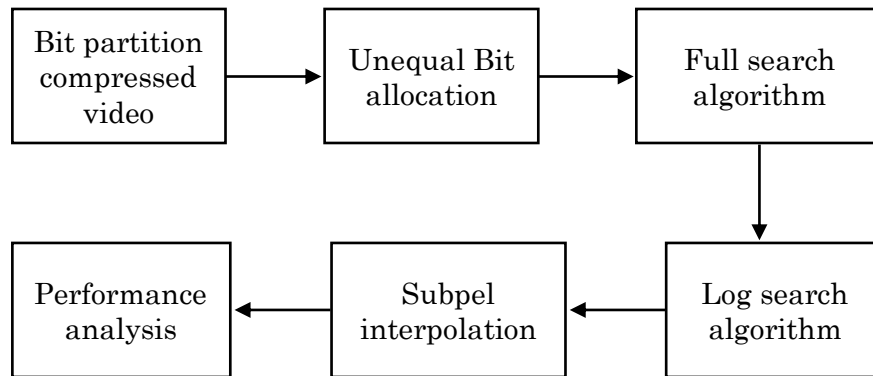
### 3.2 Proposed System

The optimum dependable transmission can be achieved the video coding from the channel coding. A frame network, which is competent of providing different pixel value, can be corresponding the each layer at its corresponding priority. Pixel motion, estimate on used to vector motion calculating in this method based on the two algorithms. One is full search algorithm and logarithmic search algorithm. The experimental result the Peak Signal to Noise Ratio (PSNR) Performance is high, Mean Square Error (MSE) value is good.

#### 3.2.1 Advantages

- It avoids the loss of in sequence during video density.
- Uncompressed video transmission brings low difficulty.
- Higher protection is provided to stream of greater significance by allocating more power.

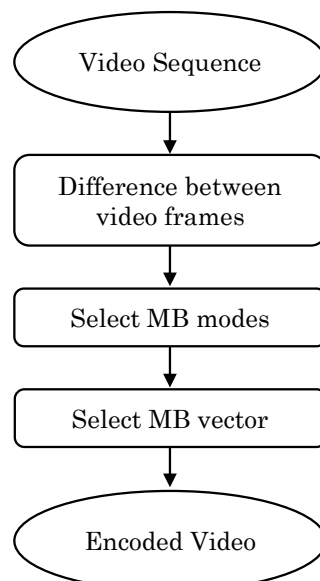
**Figure – 4:** *Video Compression*



### FRAME ESTIMATION

The first stage is used to determine the difference the video sequence and the second stage the selection of the MB mode, the search of the motion vector can be execute the different level.

**Figure – 5:** *Select the Video Frame*



The proposed method new approach used to reduce time. For scalable video coding through the minimize the time.

- (a) **First Stage:** Measuring the difference between video sequence and test frame.
- (b) **Second Stage:** Select the Macro block mode.
- (c) **Third Stage:** Choose the method of Motion Estimation to Calculate the Motion vector.

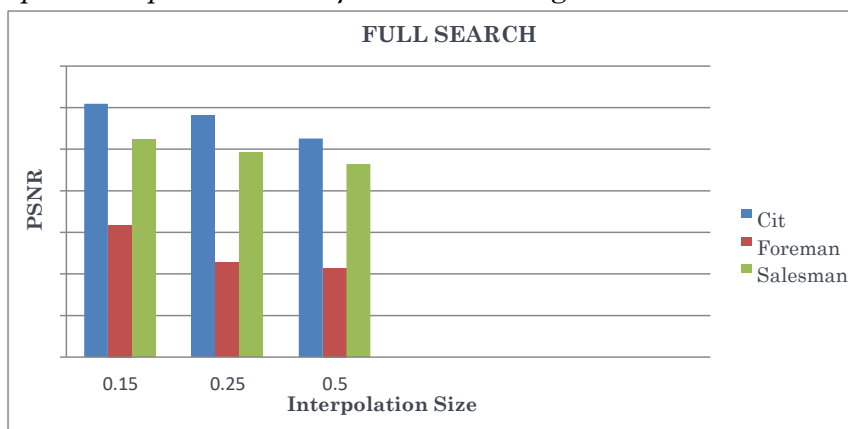
The search of the motion vector at cascade three levels

- Full pixel
- Half pixel
- Quarter pixel

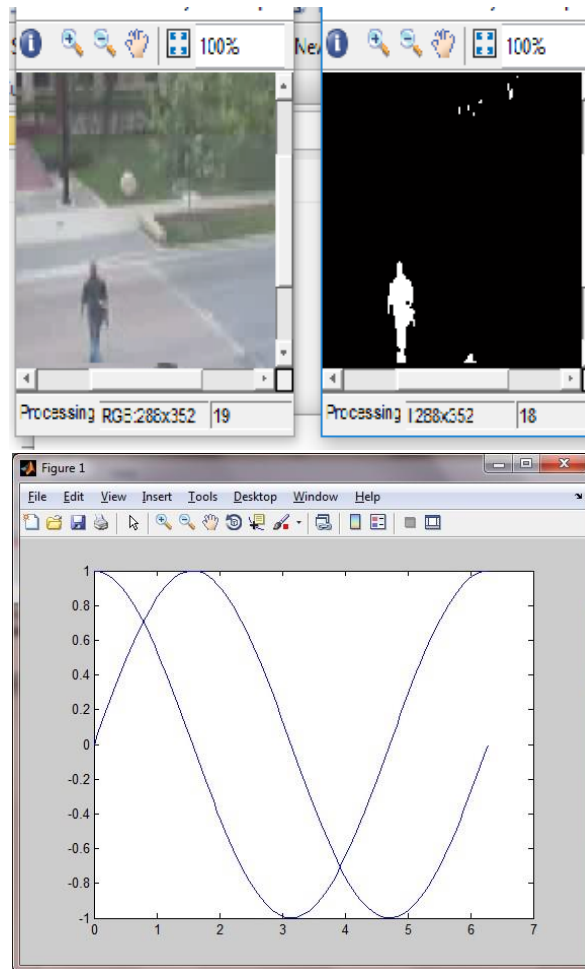
## RESULT AND DISCUSSION



**Figure – 6:** Graphical Representation of Full Search Algorithm



Search Algorithm	Video Sequence	Interpolation Values	PSNR	MSE
Full Search	Foreman	0.15	31.0908	7.4012e <sup>-04</sup>
		0.25	30.8098	7.8774e <sup>-04</sup>
		0.5	30.2568	8.9006e <sup>-04</sup>
	City	0.15	28.1772	0.0016
		0.25	27.2640	0.0019
		0.5	27.1435	0.0020
	Sales man	0.15	30.2301	5.4409e <sup>-4</sup>
		0.25	29.9221	5.7708e <sup>-4</sup>
		0.5	29.6458	6.0894e <sup>-4</sup>

**Figure – 7:** *Graphical Representation of Video Compression*

## CONCLUSION

This project presents an unequal Bit allocation Method for the broadcast of Video firmness to Wireless channels systems. The video was divided into multiple streams the proposed stream of the uncompressed video streaming and using to the search algorithm. Subpixel motion estimation implemented to the two algorithm full search and logarithmic algorithm the result compared based on two performance can be measure the MSE & PSNR

In future, the research work may enhance in the direction of compressing stereo video files. The researcher consider only a monochrome image pair, it may be extended for color stereo image pair. The quality of stereo image compression may compared by applying different block matching algorithms.

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